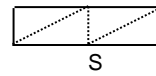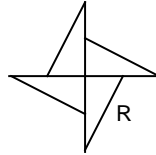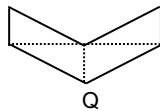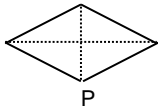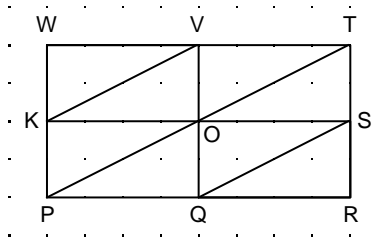# Grade 8 Unit 8 Part II

Multiple Choice
Identify the choice that best completes the statement or answers the question.

_____ 1. Each composite shape is made using 4 congruent right triangles. Which shape does not tessellate?
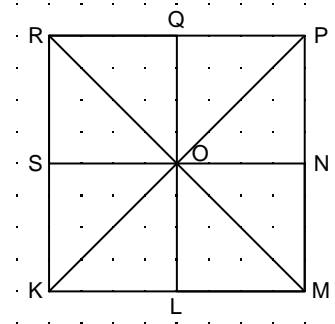

   a. Shape P   b. Shape Q   c. Shape R   d. Shape S

_____ 2. Triangle OQS is a transformation image of Triangle WKV. Describe the transformation.


   a. Translation 4 units right and 2 units down
   b. Translation 2 units right and 4 units down
   c. 180° rotation about O
   d. 90° clockwise rotation about O

_____ 3. Triangle MOL is a transformation image of Triangle PON. Describe the transformation.
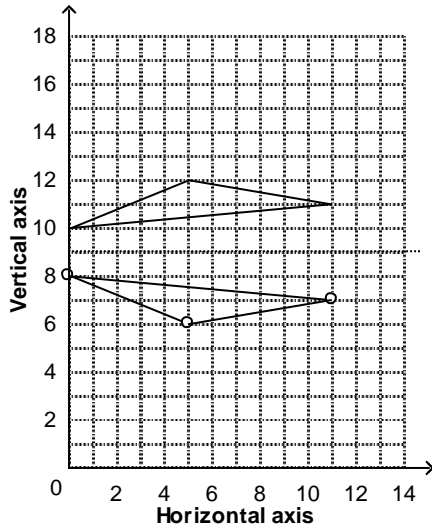

   a. Reflection in the line SN   c. 90° clockwise rotation about O
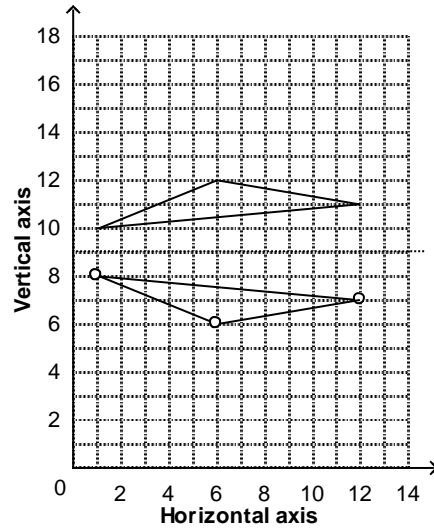   b. Reflection in the line RM   d. 90° counterclockwise rotation about O

_____ 4. This triangle is reflected in a horizontal line through the point (0, 9).
      Graph the image of the triangle on the same coordinate grid.
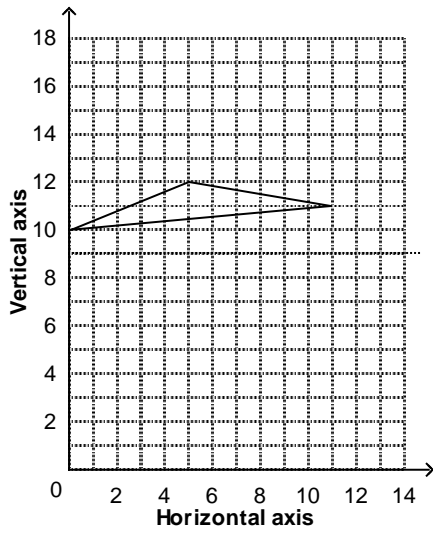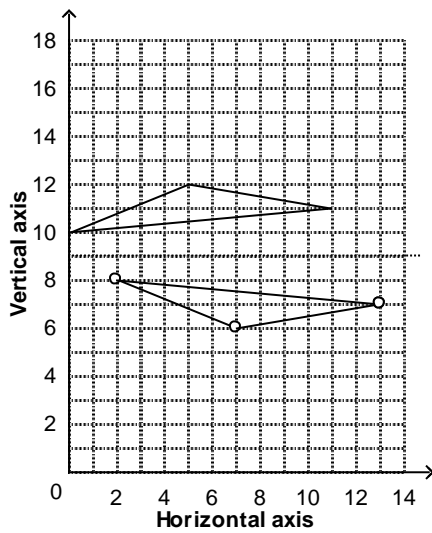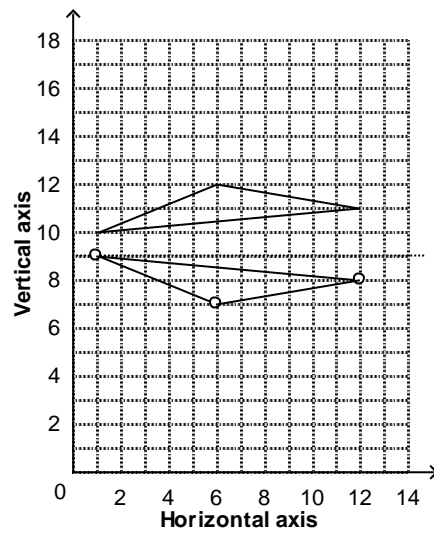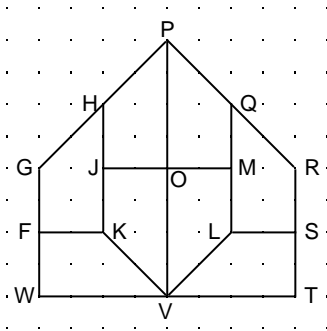
a.

c.

b.

d.

_____ 5. Quadrilateral QRSL is the transformation image of Quadrilateral HGFK. Describe the transformation.

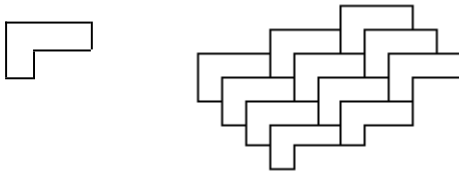a. Reflection in the line JM   c. Translation 6 units right
b. Reflection in the line PV   d. 180° rotation about O

_____ 6. Which shape tessellates?

a.   b.   c.   d.

_____ 7. This L-shape below is used to create the design on its right.

Identify the transformations used.
a. Translations only
b. Reflections only
c. Rotations only
d. None of these

_____ 8. What shapes in this diagram can be obtained by a reflection of Shape X?
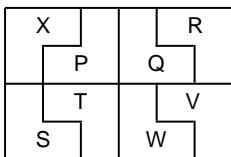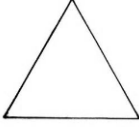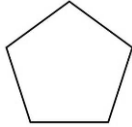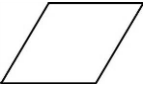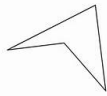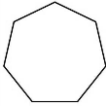
a. R and S   c. R, S, and W
b. P and W   d. R, V, and T

Short Answer

9. a) Circle the polygons that tessellate.

• Regular octagon	• Regular hexagon	• Rectangle

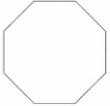|		
		Rectangle
● Equilateral triangle	●Regular pentagon	● Rhombus
Equilateral.		
●Quadrilateral	●Regular heptagon	● Square

BONUS: b)   For the polygons that cannot cover a plane without gaps, name a shape that would fill the gaps.

.

10. Use this diagram to identify each transformation.

P
Q
T
V
R
S
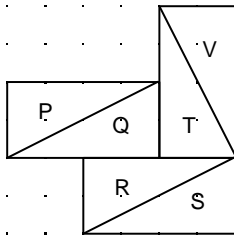
    a) Triangle R is the image of Triangle V.
    b) Triangle R is the image of Triangle P.

11. Draw the image of this shape after each transformation.
    a) Translation 4 units right and 6 units down
    b) 90° clockwise rotation about point A
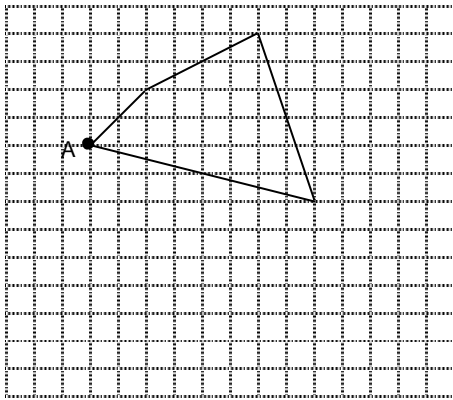
12. Jodi wants to tile her bedroom floor with octagons. This pattern shows part of the floor.
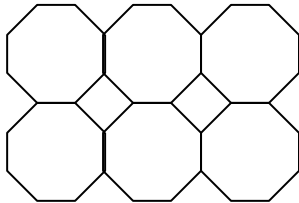
   Does Jodi need another shape to cover the floor with no gaps? If so, what is it?

13. Which of these polygons tessellate?

14. Show how this polygon tessellates 2 different ways.

15. This is one of the pattern blocks, the trapezoid. Show how this shape tessellates 2 different ways.

Grade 8 Unit 8 Part II
Answer Section

MULTIPLE CHOICE

1. ANS: C   PTS: 1   DIF: Moderate   REF: 8.5 Constructing Tessellations
    LOC: 8.SS6   TOP: Shape and Space (Transformations)
    KEY: Conceptual Understanding | Problem-solving Skills
2. ANS: A   PTS: 1   DIF: Moderate   REF: 8.4 Identifying Transformations
    LOC: 8.SS6   TOP: Shape and Space (Transformations)
    KEY: Conceptual Understanding | Communication
3. ANS: C   PTS: 1   DIF: Moderate   REF: 8.4 Identifying Transformations
    LOC: 8.SS6   TOP: Shape and Space (Transformations)
    KEY: Conceptual Understanding | Communication
4. ANS: A   PTS: 1   DIF: Moderate   REF: 8.4 Identifying Transformations
    LOC: 8.SS6   TOP: Shape and Space (Transformations)
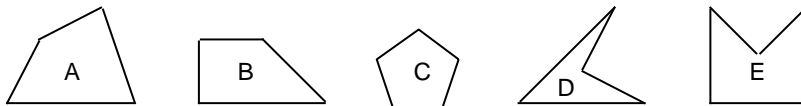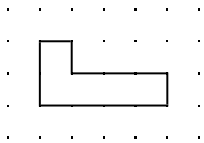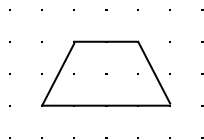   KEY: Conceptual Understanding | Communication
5. ANS: B   PTS: 1   DIF: Difficult   REF: 8.4 Identifying Transformations
    LOC: 8.SS6   TOP: Shape and Space (Transformations)
    KEY: Conceptual Understanding | Communication
6. ANS: B   PTS: 1   DIF: Easy   REF: 8.5 Constructing Tessellations
    LOC: 8.SS6   TOP: Shape and Space (Transformations)
    KEY: Conceptual Understanding
7. ANS: A   PTS: 1   DIF: Easy
    REF: 8.6 Identifying Transformations in Tessellations   LOC: 8.SS6
    TOP: Shape and Space (Transformations)   KEY: Conceptual Understanding
8. ANS: A   PTS: 1   DIF: Difficult
    REF: 8.6 Identifying Transformations in Tessellations   LOC: 8.SS6
    TOP: Shape and Space (Transformations)
    KEY: Conceptual Understanding | Problem-solving Skills

SHORT ANSWER

9. ANS:
    a) Polygons that tessellate are:
        - Equilateral triangle
        - Square
        - Rectangle
        - Rhombus
        - Regular hexagon
    b) A regular pentagon needs a rhombus to fill the gaps.
       A regular octagon needs a square to fill the gaps.

    PTS: 1   DIF: Difficult   REF: 8.5 Constructing Tessellations
    LOC: 8.SS6   TOP: Shape and Space (Transformations)
    KEY: Conceptual Understanding | Communication
10. ANS:
    a) 90° counterclockwise rotation about the vertex the triangles share.

b) Translation 2 units right and 2 units down.

PTS: 1   DIF: Moderate   REF: 8.4 Identifying Transformations
LOC: 8.SS6   TOP: Shape and Space (Transformations)
KEY: Conceptual Understanding | Communication

11. ANS:

PTS: 1   DIF: Moderate   REF: 8.4 Identifying Transformations
LOC: 8.SS6   TOP: Shape and Space (Transformations)
KEY: Conceptual Understanding | Communication

12. ANS:
A square

PTS: 1   DIF: Easy   REF: 8.5 Constructing Tessellations
LOC: 8.SS6   TOP: Shape and Space (Transformations)
KEY: Conceptual Understanding | Problem-solving Skills

13. ANS:
All polygons except polygon C tessellate.

PTS: 1   DIF: Moderate   REF: 8.5 Constructing Tessellations
LOC: 8.SS6   TOP: Shape and Space (Transformations)
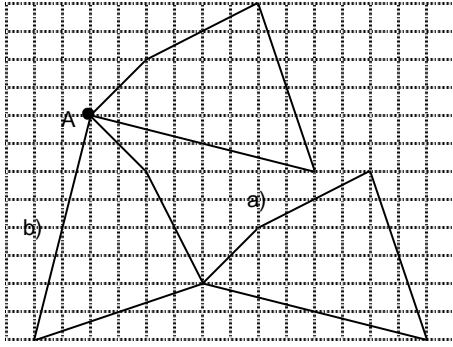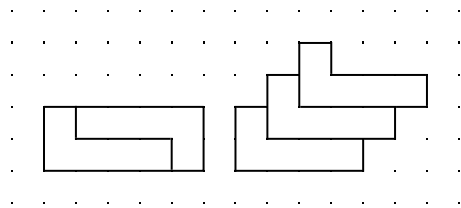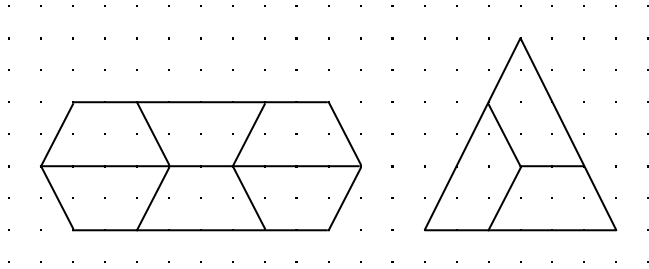KEY: Conceptual Understanding | Problem-solving Skills

14. ANS:
Answers may vary. Sample:

PTS: 1   DIF: Difficult   REF: 8.5 Constructing Tessellations
LOC: 8.SS6   TOP: Shape and Space (Transformations)
KEY: Communication

15. ANS:
Answers may vary. Sample:

PTS: 1   DIF: Difficult   REF: 8.5 Constructing Tessellations
LOC: 8.SS6   TOP: Shape and Space (Transformations)
KEY: Conceptual Understanding | Communication | Problem-solving Skills